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## United States Department of Agriculture

BUREAU OF ANIMAL INDUSTRY

## PROCEDURE FOR THE CONTROL OF BOVINE MASTITIS

Mastitis (garget) is an inflammation of the udder caused by the activities of certain bacteria (germs). The disease is, therefore, infectious and can be carried or transmitted from a diseased cow to a healthy one. Most cases of mastitis are caused by one particular kind of bacteria.

The best evidence available at the present time indicates that mastitis is carried from the diseased to the healthy cow during milking, either with machine or by hand. Although the spread of the infection is slow under ordinary circumstances, it is nevertheless sure until a large percentage of the animals in the herd are affected. As a result an eventual drop in the milk production of the herd occurs, and high-producing cows fail to return the customary yield.

Two forms of mastitis are recognized, the acute and the chronic. The acute form is well known to the cattle owner and is most often observed just before or after calving. The udder is swollen, hard, and hot, and usually is tender. Milk secretion decreases suddenly or stops entirely and the small amount of fluid which may be milked out bears little or no resemblance to normal milk. An acute attack of this kind may be evidence of a recently acquired infection of the udder or may be a flare-up of an already established case of the chronic form. In either case entrance of the bacteria into the organ and their permanent establishment there are greatly assisted by any condition which may weaken the udder, such as incomplete milking of cows hard to milk, rough milking, bruises and injuries to the teats or quarters, chilling of the udder by lying on cold floors with insufficient bedding, and many others.

The chronic form of mastitis is much more common and may frequently be present in many animals in the herd without the owner or the attendants being aware of the fact. However, certain evidence can usually be observed which points to the presence of this form of the disease, such as slightly thickened or clotted milk, watery milk, or an off color in the milk, a slight change in the udder itself for a day or two, a more rapid decrease in milk production than is generally expected—the so-called “short milker”—persistent slight inflammation in the udder after calving, and frequently high bacteria counts.

## CONTROL

Because of the nature of the disease and the manner in which it is transmitted, there appears to be a good possibility of controlling the spread of infection by adoption of a program of management and sanitation which should lead finally to elimination of mastitis from the herd. Such a program consists in detection of infected animals by a qualified veterinarian and the use of sanitary measures to be described later.

When each animal has been examined and the condition of the udder determined, those animals which are found to have marked cases of mastitis should be removed from the herd and slaughtered. Such animals are of little or no value and they are the chief source from which infection spreads. The remaining animals should then be divided into three groups, the healthy cows in one, those which are suspected of having the disease in another, and finally animals which have slight cases of mastitis in the third group. Although these last cows have mastitis, they may be retained because the trouble has not progressed to the point where the milk is unfit for use and milk production has not decreased to an unprofitable point.

Following this division, it is desirable that cows of each group be stabled together and assigned permanent stalls. In this way a permanent order of milking can be established and followed with little difficulty. In case it is impractical to stable the three groups separately, at least the healthy group should be kept separate from the other two. Since the disease is spread during milking, it follows that the healthy cows must be milked first each time, the



ones suspected of having mastitis next, and those having the disease last. When first-calf heifers are added to the milking herd, they can be safely included in the healthy group unless definite evidence of the animal's being affected with mastitis at the time of calving is observed. When animals have freshened again after division of the herd, they should be put back in the same group, provided that they have not developed mastitis in the meantime. If they have become infected, they should be placed in the third group. If a milking animal (any animal which has had one or more calves) is obtained from another herd, it should be bought only after the udder has been examined, or subject to such examination after 60 to 90 days if an examination cannot be made at the time of purchase. Such an animal should be kept isolated during that time. If the animal is found to be healthy, it is placed in the first group; otherwise it is rejected. Any member of the healthy or suspected group which develops mastitis must be immediately placed with the diseased animals. Such animal is usually easily recognized by the secretion of abnormal milk or changes in the udder.

Before milking all udders should be thoroughly cleaned. A practical method is to cut small hand towels in half and place them in a suitable chlorine solution, a strength equivalent to from 150 to 400 parts of chlorine per million of water. All containers of chlorine solutions should be made of porcelain, enamel, glass, wood, or granite ware; never use tin, galvanized iron, or aluminum. Remove a towel from the solution, wring out the excess fluid and wipe the udder thoroughly, using a separate towel for each animal. This cleanses the skin and leaves it comparatively dry. After each milking the towels should be washed, boiled, and, if possible, dried in the sun. When a milking machine is used, the teat cups should be rinsed in a chlorine solution of the above strength before each cow is milked. If milking is done by hand, the milker should wash his hands in warm, soapy water or chlorine solution, and dry them before milking the next animal. After milking, the teats of each animal should be dipped in a similar chlorine solution to disinfect the ends of the teats and any milk which remains on them. Between milkings the machine must be thoroughly cleaned and disinfected. (See Farmers' Bulletin 1315.)

Inasmuch as any injuries to the udder cause it to be more easily attacked by mastitis bacteria, as much care as possible should be taken while the animals are in the stable, to prevent such injuries. This may be done by providing properly constructed stalls which allow adequate space for each cow, stall partitions to prevent cows from treading on one another's teats, and a well-bedded, dry floor. The generous use of lime in the stable keeps the floor dry.

If the foregoing procedure is strictly followed, there should be no further spread of the disease to the healthy animals. Also there should be a reduction in the severity of the disease in the affected group. However, it must be emphasized that successful operation of this disease-control measure depends entirely upon daily observance of all of the points mentioned. Finally, adequate veterinary supervision of the herd should be maintained at all times.

J. R. MOHLER, *Chief of Bureau.*

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